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| 10/020,808 | 12/12/2001 | Hongyuan Chen | 4925-182 | 8928 |

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| EXAMINER |
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SUAZO, RAINIER A

| ART UNIT | PAPER NUMBER |
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2144

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,808

Applicant(s)

CHEN, HONGYUAN

Examiner

Rainier Suazo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims **1-41** are pending in this application.

Claim Rejections - 35 USC § 102(b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims **1-3, 7-11, 13-14, 16-20, 22-28, 30-34 and 37-41** are rejected under 35 U.S.C. 102(b) as being anticipated by Larson et al. (US 6,535,498 B1) hereinafter 'Larsson 498'.

3. Regarding claim 1,

Larsson 498 taught a method for transmitting a route request for a route between a source node and a destination node in a communication network and for transmitting a reply identifying the route, the communication network including a plurality of nodes including at least one master node in at least one piconet, said method comprising: transmitting the route request from the receiving node in the communication network to the at least one master node of said at least one piconet via a unicast transmission (column 4 lines 56-65, column 5 lines 58-67, claims 20 and 24, and fig. 2, 4 and 5);

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and generating a route reply and sending the route reply to the source node (**column 2 lines 64-66 and column 55-63**), the route reply identifying the route in the communication network between the source node and the destination node (**column 6 lines 55-63 and fig. 5**). The column 2 from line 1 to line 66 provides a more complete description of the background of Larsson 498's invention pertinent to the instant application. Since Bluetooth specifications operate in lower layers of the OSI Model, a broadcast request from upper layers is, in deed unicasted to the master node. It is also well known that upper layer make requests to lower layers and therefore a device can submit request to itself.

4. Regarding claim 14,

Larsson 498 taught a device-readable memory for a communication device, the memory storing device-readable instructions for transmitting a route request in a communication network (**column 4 lines 56-65, column 5 lines 58-67, claims 20 and 24, and fig. 2, 4 and 5**) and for generating a route reply identifying the route (**column 2 lines 64-66 and column 55-63**), the route request being one of received at and generated by the communication device for a route between a source node and a destination node in the communication network (**column 4 lines 57-65 and fig. 4-5**), the communication network including a plurality of nodes including the communication device and at least one master node in at least one piconet (**column 2 lines 14-21**), said memory comprising the route reply identifying the route in the communication network between the source node and the destination node (**column 2 lines 64-66,**

column 6 lines 55-63 and fig. 5). The column 2 from line 1 to line 66 provides a more complete description of the background of Larsson 498's invention pertinent to the instant application. Since Bluetooth specifications operate in lower layers of the OSI Model, a broadcast request from upper layers is, in deed unicasted to the master node. It is also well known that upper layer make requests to lower layers and therefore on device can submit request to itself.

5. Regarding claim 23,

Larsson 498 taught a wireless communication device for transmitting a route request for a route between a source node and a destination node in a communication network (**column 4 lines 57-65 and fig. 4-5**) and for generating a route reply identifying the route (**column 2 lines 64-66 and column 6 lines 55-63**), the route request being one of received at and generated by the device, wherein the communication network includes a plurality of nodes including the device and at least one master node in at least one piconet (**column 2 lines 14-21**), said device comprising a transceiver and a memory storing device-executable instructions for transmitting the route request to the at least one master node of the at least one piconet via a unicast transmission (**column 2 lines 14-21**) and for generating a route reply and sending the route reply to the source node, the route reply identifying the route in the communication network between the source node and the destination node (**column 2 lines 64-66, column 6 lines 55-63 and fig. 5**). The column 2 from line 1 to line 66 provides a more complete description of the background of Larsson 498's invention pertinent to the instant application. Since

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Bluetooth specifications operate in lower layers of the OSI Model, a broadcast request from upper layers is, in deed unicasted to the master node. It is also well known that upper layer make requests to lower layers and therefore on device can submit request to itself.

6. Regarding claim 2,

Larsson 498 further taught a method wherein the route request is received by the receiving node from another node in the at least one piconet (**column 2 lines 14-21, column 5 lines 58-67 and fig. 4 steps 415 linked to step 418**).

7. Regarding claim 3,

Larsson 498 taught a method wherein the route request is generated within the receiving node (**column 1 line 60 to column 2 line 66**). Note that the claimed limitation is inherent in a Bluetooth network such as the one depicted by Larsson 498 (see also claim 10). It is well known in the art that uppers layers of the OSI Model (i.e. layer 7) are supported subsequent lower layers (i.e. the functionality provided by a Bluetooth transceiver chip operating at the very last two layers of the OSI Model). Therefore Larsson 498 disclosure with Bluetooth enabled devices will, in deed, be submitting a route request to itself by invoking the functionality of a lower layer when such route is required by applications running in upper layers.

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8. Regarding claim 7,

Larsson 498 taught a method further comprising the steps of: (a) determining, before said step of transmitting, whether the receiving node is a master node (**claim 10 [it is inherent in a Bluetooth network that nodes are able to determine whether they are masters of slaves since every node is loaded with functionality to perform both roles]]**); and (b) determining whether the destination node is in the piconet of the receiving node (**fig. 5 and column 6 lines 38-54**) if it is determined in said step (a) that the receiving node is a master node (**claims 10 and 24 [Note that in a Bluetooth network such determination is done in masters node that are capable of retransmitting contrasting with slave nodes that do not belong to multiple piconets]]**); wherein said step of generating a route reply and sending the route reply to the source node is performed if it is determined in said step (b) that the destination node is in the piconet of the node, and said step of transmitting is performed if it is determined in said step (b) that the destination node is not in the piconet of the receiving node (**fig. 5 [520], column 6 lines 28-63 and column 8 lines 19-52**).

9. Regarding claim 8,

Larsson 498 taught a method further comprising the step of adding the receiving node to a route list of a packet containing the route request before said step of generating a route reply if it is determined in said step (b) that the destination node is in the piconet of the receiving node (**fig. 5 [430 and 425], column 6 lines 55-63**).

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10. Regarding claims 9, 18 and 32,

Larsson 498 taught a method and memory storing device or computer readable instructions further comprising the steps of: (a) determining, before said step of transmitting, whether the receiving node is a master node (**claim 10 [it is inherent in a Bluetooth network that node are able to determine whether they are masters of slaves since every node is loaded with functionality to perform both roles]**) and (b) determining whether the receiving node is participating in multiple piconets if it is determined in said step (a) that the receiving node is not a master node, wherein said step of transmitting the route request to a master node of the receiving node includes transmitting the route request if it is determined in said step (b) that the receiving node is not participating in multiple piconets (**column 2 lines 16-21 and fig. 2**).

11. Regarding claims 10, 16, 19, 30 and 33,

Larsson 498 taught a method and memory storing device or computer readable instructions further comprising the step: (c) determining whether the destination node is in the piconet of the master node of the receiving node after said step (b) (**column 6 lines 55-57 and fig. 5 [520]**), wherein said step of generating a route reply and sending the route reply to the source node includes generating and sending the route reply if it is determined in said step (c) that the destination node is in the piconet of the master node of the receiving node (**column 6 lines 55-57 and fig. 5 [520]**), and said step of transmitting the route request includes transmitting the route request if it is determined

in said step (c) that the destination node is not in the piconet of the master node of the receiving node (**column 6 lines 50-54**).

12. Regarding claims 11, 20 and 34,

Larsson 498 taught a method and memory storing device or computer readable instructions wherein the step of transmitting the route request comprises transmitting the route request to master nodes in piconets other than the piconet from which the route request was received if it is determined in said step (b) that the receiving node is participating in multiple piconets (**column 2 lines 14-21, column 5 lines 57-67, column 6 lines 50-54 and fig. 5 [520]**).

13. Regarding claims 13 and 22,

Larsson 498 taught a method and memory storing device or computer readable instructions further comprising the steps of: (a) determining, before said step of transmitting, whether the receiving node is a master node (**claim 10 [it is inherent in a Bluetooth network that node are able to determine whether they are masters of slaves since every node is loaded with functionality to perform both roles]**); and (b) determining whether the receiving node is participating in multiple piconets if it is determined in said step (a) that the receiving node is not a master node, wherein said step of transmitting the route request includes transmitting the route request to master nodes in piconets other than the piconet from which the route request was received if it is determined in said step (b) that the receiving node is participating in multiple piconets (**column 2 lines 16-21 and fig. 2**).

14. Regarding claims 17 and 31,

Larsson 498 taught memory wherein said device-readable instructions for generating a route reply further include device-readable instructions for adding the communication device to a route list of a packet containing the route request before sending the route reply if it is determined that the destination node is in the piconet of the communication device (**fig. 5 [430 and 425], column 6 lines 55-63**).

15. Regarding claim 24,

Larsson 498 taught an embodiment wherein the transceiver is a Bluetooth radio (**claim 10**).

16. Regarding claim 25,

Larsson 498 taught a device further comprising a protocol stack including a network layer and a link layer, said device-executable instructions comprising a part of said network layer (**column 3 lines 13-18 and at least the same reasons under which claim 23 in the instant application is rejected**). Note that the disclosure presented by Larsson 498 is pertinent to route discovery and routing techniques that are well known in the art to operate in the layer three of the OSI Model.

17. Regarding claim 26,

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Larsson 498 taught a device wherein said communication network comprises an ad-hoc network (**column 1 lines 16-19**) and said network layer comprises a network block comprising device-executable instructions for ad-hoc networking, said device-executable instructions for transmitting the route request comprising a part of said device-executable instructions for ad-hoc networking (**claim 1 and 15**).

18. Regarding claim 27,

Larsson 498 taught a device device of claim 23, further comprising a protocol stack including a network layer and a link layer, said device executable instructions comprising a part of said link layer. (**column 3 lines 13-18 and at least the same reasons under which claim 23 is rejected**). Note that the disclosure presented by Larsson 498 is pertinent to route discovery and routing techniques that are well known in the art to operate in the layer three of the OSI Model and that inter layer operability need incorporate subsequent lower and upper layer specifications in order to properly communicate.

19. Regarding claim 28,

Larsson 498 taught a device, wherein said link layer comprises a Bluetooth driver with a personal area network profile, said device-executable instructions comprising a part of said personal area network profile (**claims 10 and 16**).

20. Regarding claim 37,

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Larsson 498 taught a device comprising a mobile phone (**column1 lines 39-49**).

21. Regarding claim **38-41**,

Larsson 498 taught a device wherein the transceiver is operable for the communication via a Bluetooth protocol in an ad-hoc network (**column 1 lines 16-19 and claim 10**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claim **4-6, 12, 15, 21, 29, 35 and 36** is rejected under 35 U.S.C. 103(a) as being unpatentable over Larson 498 in view of Larsson et al. (US 6,704,293 B1) hereinafter 'Larsson 293'.

23. Regarding claims **4, 12, 15, 21, 29 and 35,**

Larsson 498 taught the invention substantially as claimed. However Larsson 498 did not expressively teach a method further comprising the steps of: (a) determining, before said step of transmitting, whether the route request has been previously received at the receiving node; and (b) ignoring the route request if it is determined in said step (a) that the route request has been previously received at the receiving node. One of ordinary skill in the art working with Larsson 498 disclosure would have been motivated to explore the art of finding a route from a source node to a destination node in a communication network (see Larsson 498 column 1 lines 15-19, column 2 lines 46-55, column 2 lines 46-55 and column 3 lines 13-18).

Larsson 293 teaches dropping a message that has been already received or otherwise continuing with a route discovery process (**fig. 6 and column 6 lines 18-44**).

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Moreover Larsson 293 disclosed the claimed limitation as admitted prior art at the time of filing the application in 12/06/1999. See figure 5.

It would have been obvious for one of ordinary skill in the art at the time was made to modify Larsson 498 with the teachings of Larsson 293. Larsson 293 motivated the exploration of the art of finding a route from a source node to a destination node **(column 4 lines 37-47)**; and Larsson 498 in column 2 lines 46-55 also motivated such exploration. Larsson 498 would have resulted improved with the modification in terms of performance by dropping route discovery packets the have been already processed.

24. Regarding claim 5,

Larsson 498 further taught a method wherein the route request is received by the receiving node from another node in the at least one piconet **(column 2 lines 14-21, column 5 lines 58-67 and fig. 4 steps 415 linked to step 418)**.

25. Regarding claim 6,

Larsson 498 taught a method wherein the route request is generated within the receiving node **(column 1 line 60 to column 2 line 66)**. Note that the claimed limitation is inherent in a Bluetooth network such as the one depicted by Larsson 498 (see also claim 10). It is well known in the art that uppers layers of the OSI Model (i.e. layer 7) are supported subsequent lower layers (i.e. the functionality provided by a Bluetooth transceiver chip operating at the very last two layers of the OSI Model). Therefore Larsson 498 disclosure with Bluetooth enabled devices will in deed be

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submitting a route request to itself by invoking the functionality of a lower layer when such route is required by applications running in upper layers.

26. Regarding claim 36,

Larsson 498 taught a device, wherein said memory further comprises device-readable instructions for determining whether the route request has been previously received at the communication device before determining whether the communication device is a master node, and for ignoring the route request if it is determined that the route request has been previously received at the communication device (**claim 10 [it is inherited in a Bluetooth network that node are able to determine whether they are masters of slaves since every node is loaded with functionality to perform both roles], column 2 lines 16-21 and fig. 2).**

Conclusion


27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892 for details.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rainier Suazo whose telephone number is (571) 272-3931. The examiner can normally be reached on Monday through Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski can be reached on (571) 272-3925. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rainier Suazo, MBA
Patent Examiner
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